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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,616	04/16/2004	Yong Ho Jang	8734.298	7873
30827 7590 02/14/2008 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER TSEGAYE, DANIEL	
			ART UNIT 2629	PAPER NUMBER
			MAIL DATE 02/14/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/825,616

Applicant(s)

JANG ET AL.

Examiner

DANIEL TSEGAYE

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Dec 26, 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13, 14, 16 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 10-12, 15 and 17-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. *The amendment filed on 06/28/2007 has been entered and considered by the examiner.*

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9, 13-14, 16, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii (U.S P# 6,670,944) in view of Kim (U.S Pub # 2003/0128180), further in view of Kanzaki (U.S Pat # 6,967,639).

As to claim 1, Ishii discloses a gate driving apparatus for a liquid crystal display, comprising: a shift register (1560) provided with first (e.g., CLX) and second half-period clock signals (e.g., CLX<sub>INV</sub>) phases inverted with respect to each other (see Fig. 13), a start pulse (e.g., DX), a high-level supply voltage (e.g., VGG) and a low-level supply voltage (e.g., VSS). Ishii does not teach first to fourth one-period clock signals having phases shifted sequentially and each having a pulse width of one period. Kim teaches first to fourth one-period clock signals having phases shifted sequentially and each having a pulse width of one period (see Fig. 5A and [0082]).

Therefore, it would have obvious to one of ordinary skill in the art at time the invention was made to have provided with first to fourth one-period clock signals having

phases shifted sequentially and each having a pulse width of one period as taught by Kim to the elect optical device of Ishii because the swing widths of clock signals and the start pulse applied to the shift register are reduced to lower power consumption (see [0123]).

Ishii and Kim do not teaches wherein the shift register generates a half-period output, and generates a one-period output at a half-period delay from an end time of the half-period output. Kanzaki teaches wherein the shift register generates a half-period output, and generates a one-period output at a half-period delay from an end time of the half-period output (see col. 6, lines 42-48).

Therefore, it would have obvious to one of ordinary skill in the art at time the invention was made to have provided with shift register generates a half-period output, and generates a one-period output at a half-period delay from an end time of the half-period output as taught by Kanzaki to the shift register of Ishii as modified by Kim because it is possible to drive a display device having a multiplex pixel structure only with simple on or off signal and simplify the structure of a scan line drive circuit (see col. 16 lines 66-67 and col. 17, lines 1-2).

As to claim 22, this claim differs from 1 only in that claim 1 is apparatus whereas claim 22 is method.

As to claim 4, this claim differs from 1 only in the limitations "first input circuit for charging a first charge control node" and "for charging a first discharge control node" are additionally recited. Kim clearly teaches first input circuit (e.g., T1 and T2) for

charging a first charge control node (e.g., Q) and for charging a first discharge control node (e.g., QB, see [0073] and [0074]).

As to claim 24, this claim differs from 4 only in that claim 4 is apparatus whereas claim 24 is method. In addition, claim 24 differs from 4 only the limitation "charging the second charge control node" and "charging the second discharge control node" are additionally recited. Kim clearly teaches charging the second charge control node (e.g., QL, see [0078]), charging the second discharge control node (see Fig. 6, e.g., the node between T10 and T11).

As to claim 2, Kim teaches wherein the stages are connected in a cascade arrangement (see [0012]).

As to claims 3 and 23, Ishii teaches wherein any of the first (e.g., CLX) and second half-period clock signals (e.g., CLX<sub>INV</sub>), any one of the first to fourth one-period clock signals (e.g., C2) and the start pulse are synchronized with each other (see Fig. 13).

As to claim 5, note the discussion of Ishii and Kim above in claim 24.

As to claim 6, Kim teaches wherein the first input circuit (e.g., T1 and T2), the first output circuit (e.g., T6), the second input circuit and the second output circuit are included in each of a plurality of stages (see [0032]).

As to claim 7, Kim teaches wherein the start pulse is applied to first stage of the plurality of stages (see [0033]).

As to claim 8, Ishii teaches wherein the first half-period clock signal (e.g., CLX<sub>INV</sub>) is synchronized with the second clock signal (e.g., CLX) and start pulse (e.g., DX) are synchronized with each other (see Fig. 13).

As to claim 9, Kim teaches wherein the first input circuit (e.g., T1 and T2) for charging the first charge control node (e.g., Q) (see Fig. 6). Ishii teaches an inverter (1590) and also the limitation a half-period delay from the end time of the start pulse in response to the start pulse (e.g., DX) and the first half-period clock signal (e.g., C1) (see Fig. 11).

As to claim 13, Kim teaches a sixth transistor (e.g., T4) having a gate electrode supplied with first clock signal (e.g., C3) and a source electrode supplied with a high-level supply voltage (e.g., VDD); and

A seventh transistor having a gate electrode supplied with the first half-period clock signal (e.g., SP), a source electrode connected to a drain electrode of the sixth transistor, and drain electrode connected to the first discharge control node (e.g., QL) (see Fig.6).

As to claim 14, Kim teaches an eighth transistor (e.g., T13) having a gate electrode supplied with start pulse (e.g., Sp), a drain electrode supplied with a low-level supply voltage (e.g., VSS), and a source electrode connected to the first discharge control node (e.g., QL); and

A ninth transistor (e.g., T8) having a drain electrode supplied with a low-level supply voltage (e.g., VSS), a gate electrode connected to the output node (e.g., LO1)

and a source electrode connected to the first discharge control node (e.g., QL) (see Fig.6).

As to claim 16, this claim differs from 9 only the limitation "an inverter for charging the second charge control node". Kim teaches an inverter (e.g., T10) for charging the second charge control node (e.g., QL) (see [0080])

As to claim 25, Ishii teaches wherein the first half-period clock signal (e.g., CLX), the second clock signal (e.g., CLX<sub>INV</sub>) and the start pulse (DX) are synchronized with each other (see Fig.13).

#### ***Allowable Subject Matter***

4. Claims 10-12, 15, 17-21 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

5. Applicant's arguments with respect to claim 1-9, 13, 14, 16 and 23-25 have been considered but are moot in view of the new ground(s) of rejection. In view of argument, the reference of Kim is substitute for Park in the rejection.

#### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL TSEGAYE whose telephone number is 571 270-1715. The examiner can normally be reached on Monday-Friday, 8:00:00 EST.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHANH NGUYEN can be reached on 571 272 7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Tsegaye  
Jan 24, 2008

  
CHANH D. NGUYEN  
SUPERVISORY PATENT EXAMINER